KENWOOD

NEXEDGE
NX-210

VHF DIGITAL TRANSCEIVER
INSTRUCTION MANUAL

ÉMETTEUR-RÉCEPTEUR NUMÉRIQUE VHF
MODE D'EMPLOI

TRANSCEPTOR DIGITAL VHF
MANUAL DE INSTRUCCIONES

VHF DIGITAL TRANSCEIVER

NX-210

INSTRUCTION MANUAL

Kenwood Corporation

Terminal Descriptions
Universal connector
It is possible to use a resin-based cover for the Universal connector.

NO.	Name	Description	Impedance	I/O
1	SSW	Ext/Int Speaker Switch Input	High Impedance	I
2	SP+	BTL Output + for External Speaker	8 Ω/ 16 Ω	O
3	SP-	BTL Output - for External Speaker		O
4	MSW	Ext/Int MIC Switch Input	High Impedance	I
5	EMC	External MIC Input	1.8 kΩ	I
6	ME	External MIC GND	GND	-
7	PTT	External PTT Input	High Impedance	I
8	PF	Programable Function Key Input	High Impedance	I
9	OPT	Man Down Input	High Impedance	I
10	E	GND	GND	-
11	5V	5V power supply output	5V	O
12	TXD	Serial Data Output	CMOS	O
13	RXD	Serial Data Input	CMOS	I
14	NC	Not used	-	-

Antenna Terminal
50 Ω impedance

Battery Terminal
The battery terminal uses a spring plate.
The negative terminal connects to the chassis ground.
The battery is mounted on the rear side of the transceiver using a sliding mounting method.

Thank You

We are grateful you have chosen **Kenwood** for your land mobile radio applications.

This instruction manual covers only the basic operations of your NEXEDGE portable radio. Ask your dealer for information on any customized features they may have added to your radio.

NXDN™

NXDN™ is a protocol name for a new digital communications system using 4-level FSK technology which has been co-developed by **Kenwood** and Icom.

Notices to the User

◆ Government law prohibits the operation of unlicensed radio transmitters within the territories under government control.
◆ Illegal operation is punishable by fine and/or imprisonment.
◆ Refer service to qualified technicians only.

SAFETY: It is important that the operator is aware of and understands hazards common to the operation of any transceiver.

The AMBE+2™ voice coding Technology embodied in this product is protected by intellectual property rights including patent rights, copyrights and trade secrets of Digital Voice Systems, Inc. This voice coding Technology is licensed solely for use within this Communications Equipment. The user of this Technology is explicitly prohibited from attempting to extract, remove, decompile, reverse engineer, or disassemble the Object Code, or in any other way convert the Object Code into a human-readable form. U.S. Patent Nos. #5,870,405, #5,826,222, #5,754,974, #5,701,390, #5,715,365, #5,649,050, #5,630,011, #5,581,656, #5,517,511, #5,491,772, #5,247,579, #5,226,084 and #5,195,166.

One or more of the following statements may be applicable:

PRECAUTIONS

- Do not charge the transceiver and battery pack when they are wet.
- Ensure that there are no metallic items located between the transceiver and the battery pack.
- Do not use options not specified by **Kenwood**.
- If the die-cast chassis or other transceiver part is damaged, do not touch the damaged parts.
- If a headset or headphone is connected to the transceiver, reduce the transceiver volume. Pay attention to the volume level when turning the squelch off.
- Do not place the microphone cable around your neck while near machinery that may catch the cable.
- Do not place the transceiver on unstable surfaces.
- Ensure that the end of the antenna does not touch your eyes.
- When the transceiver is used for transmission for many hours, the radiator and chassis will become hot. Do not touch these locations when replacing the battery pack.
- Always switch the transceiver power off before installing optional accessories.
- The charger is the device that disconnects the unit from the AC mains line. The AC plug should be readily accessible.

⚠ WARNING

Turn the transceiver power off in the following locations:

- Near explosives or blasting sites.

- In aircrafts. (Any use of the transceiver must follow the instructions and regulations provided by the airline crew.)

- Where restrictions or warnings are posted regarding the use of radio devices, including but not limited to medical facilities.

- Near persons wearing pacemakers.

Turn the transceiver power off in the following locations, unless the model is specifically qualified for such use (Intrinsically Safe such as approved by Factory Mutual, CSA):

- In explosive atmospheres (inflammable gas, dust particles, metallic powders, grain powders, etc.).

- While taking on fuel or while parked at gasoline service stations.

⚠ WARNING

- The orange seal on the reverse side of the transceiver is important with respect to the waterproof efficiency of the transceiver. Do not place stickers or other materials on or around the seal shown in the figure, or on the reverse side of the battery pack. Doing so will impair the waterproof efficiency of the transceiver and may cause it to break down. Additionally, in order to prevent damage to the seal, do not allow it to come in contact with foreign materials.
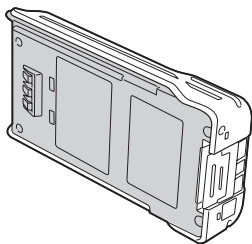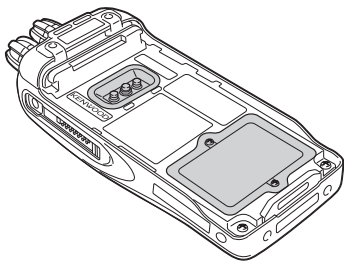
⚠ **CAUTION**

- Do not disassemble or modify the transceiver for any reason.

- Do not place the transceiver on or near airbag equipment while the vehicle is running. When the airbag inflates, the transceiver may be ejected and strike the driver or passengers.

- Do not transmit while touching the antenna terminal or if any metallic parts are exposed from the antenna covering. Transmitting at such a time may result in a high-frequency burn.

- If an abnormal odor or smoke is detected coming from the transceiver, switch the transceiver power off immediately, remove the battery pack from the transceiver, and contact your **Kenwood** dealer.

- Use of the transceiver while you are driving may be against traffic laws. Please check and observe the vehicle regulations in your area.

- Do not expose the transceiver to extremely hot or cold conditions.

- Do not carry the battery pack (or battery case) with metal objects, as they may short the battery terminals.

INFORMATION CONCERNING THE BATTERY PACK

The battery pack includes flammable objects such as organic solvent. Mishandling may cause the battery to rupture producing flames or extreme heat, deteriorate, or cause other forms of damage to the battery. Please observe the following prohibitive matters.

> ⚠️ **DANGER**
>
> - **Do not disassemble or reconstruct battery!**
>
>   The battery pack has a safety function and protection circuit to avoid danger. If they suffer serious damage, the battery may generate heat or smoke, rupture, or burst into flame.
>
> - **Do not short-circuit the battery!**
>
>   Do not join the + and – terminals using any form of metal (such as a paper clip or wire). Do not carry or store the battery pack in containers holding metal objects (such as wires, chain-necklace or hairpins). If the battery pack is short-circuited, excessive current will flow and the battery may generate heat or smoke, rupture, or burst into flame. It will also cause metal objects to heat up.
>
> - **Do not incinerate or apply heat to the battery!**
>
>   If the insulator is melted, the gas release vent or safety function is damaged, or the electrolyte is ignited, the battery may generate heat or smoke, rupture, or burst into flame.
>
> - **Do not use or leave the battery near fires, stoves, or other heat generators (areas reaching over 80°C/ 176°F)!**
>
>   If the polymer separator is melted due to high temperature, an internal short-circuit may occur in the individual cells and the battery may generate heat or smoke, rupture, or burst into flame.
>
> - **Avoid immersing the battery in water or getting it wet by other means!**
>
>   If the battery becomes wet, wipe it off with a dry towel before use. If the battery's protection circuit is damaged, the battery may charge at extreme current (or voltage) and an abnormal chemical reaction may occur. The battery may generate heat or smoke, rupture, or burst into flame.

⚠ DANGER

- **Do not charge the battery near fires or under direct sunlight!**

  If the battery's protection circuit is damaged, the battery may charge at extreme current (or voltage) and an abnormal chemical reaction may occur. The battery may generate heat or smoke, rupture, or burst into flame.

- **Use only the specified charger and observe charging requirements!**

  If the battery is charged in unspecified conditions (under high temperature over the regulated value, excessive high voltage or current over regulated value, or with a remodelled charger), it may overcharge or an abnormal chemical reaction may occur. The battery may generate heat or smoke, rupture, or burst into flame.

- **Do not pierce the battery with any object, strike it with an instrument, or step on it!**

  This may break or deform the battery, causing a short-circuit. The battery may generate heat or smoke, rupture, or burst into flame.

- **Do not jar or throw the battery!**

  An impact may cause the battery to leak, generate heat or smoke, rupture, and/or burst into flame. If the battery's protection circuit is damaged, the battery may charge at an abnormal current (or voltage), and an abnormal chemical reaction may occur.

- **Do not use the battery pack if it is damaged in any way!**

  The battery may generate heat or smoke, rupture, or burst into flame.

- **Do not solder directly onto the battery!**

  If the insulator is melted or the gas release vent or safety function is damaged, the battery may generate heat or smoke, rupture, or burst into flame.

- **Do not reverse the battery polarity (and terminals)!**

  When charging a reversed battery, an abnormal chemical reaction may occur. In some cases, an unexpected large amount of current may flow upon discharging. The battery may generate heat or smoke, rupture, or burst into flame.

⚠ DANGER

- **Do not reverse-charge or reverse-connect the battery!**

  The battery pack has positive and negative poles. If the battery pack does not smoothly connect with a charger or operating equipment, do not force it; check the polarity of the battery. If the battery pack is reverse-connected to the charger, it will be reverse-charged and an abnormal chemical reaction may occur. The battery may generate heat or smoke, rupture, or burst into flame.

- **Do not touch a ruptured and leaking battery!**

  If the electrolyte liquid from the battery gets into your eyes, wash your eyes out with fresh water as soon as possible, without rubbing your eyes. Go to the hospital immediately. If left untreated, it may cause eye-problems.

⚠ WARNING

- **Do not charge the battery for longer than the specified time!**

  If the battery pack has not finished charging even after the regulated time has passed, stop it. The battery may generate heat or smoke, rupture, or burst into flame.

- **Do not place the battery pack into a microwave or high pressure container!**

  The battery may generate heat or smoke, rupture, or burst into flame.

- **Keep ruptured and leaking battery packs away from fire!**

  If the battery pack is leaking (or the battery emits a bad odor), immediately remove it from flammable areas. Electrolyte leaking from battery can easily catch on fire and may cause the battery to generate smoke or burst into flame.

- **Do not use an abnormal battery!**

  If the battery pack emits a bad odor, appears to have different coloring, is deformed, or seems abnormal for any other reason, remove it from the charger or operating equipment and do not use it. The battery may generate heat or smoke, rupture, or burst into flame.

CONTENTS

UNPACKING AND CHECKING EQUIPMENT

Note: These unpacking instructions are for use by your **Kenwood** dealer, an authorized **Kenwood** service facility, or the factory.

Carefully unpack the transceiver. We recommend that you identify the items listed in the following list before discarding the packing material. If any items are missing or damaged, file a claim with the carrier immediately.

SUPPLIED ACCESSORIES

Belt clip 1
• Screws for belt clip (3 x 8 mm) 2
Universal connector cap 1
• Dressing screw (preassembled) 1
• Packing (preassembled) 1
Instruction manual 1

INSTALLING/ REMOVING THE (OPTIONAL) BATTERY PACK

1 Match the guides of the battery pack with the grooves on the upper rear of the transceiver, then firmly press the battery pack in place.

2 Lock the safety catch to prevent accidentally releasing the battery pack.

3 To remove the battery pack, lift the safety catch, press the release latch, then pull the battery pack away from the transceiver.
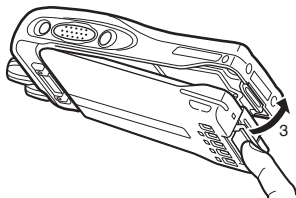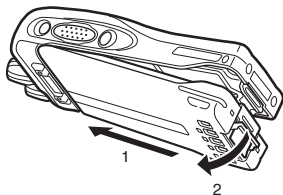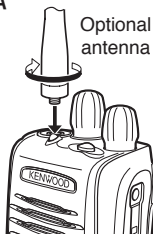
Note:

◆ For battery pack charging procedures and useage, refer to the battery charger Instruction Manual.

◆ Before charging a battery pack that is attached to the transceiver, ensure that the safety catch is firmly closed.

◆ While operating the transceiver using a Li-ion battery pack in areas with an ambient temperature of –10°C/ +14°F and lower, operating time may be shortened.

INSTALLING THE (OPTIONAL) ANTENNA

Screw the antenna into the connector on the top of the transceiver by holding the antenna at its base and turning it clockwise until secure.

Optional antenna

INSTALLING THE BELT CLIP

Attach the belt clip using the supplied 3 x 8 mm screws.

Note: If the belt clip is not installed, its mounting location may get hot during continuous transmission or when left sitting in a hot environment.

Belt clip

3 x 8 mm screws
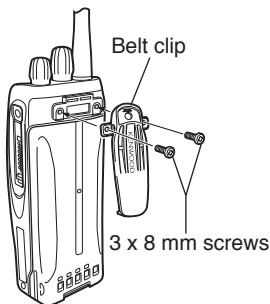
⚠ CAUTION

Do not use glue which is designed to prevent screw loosening when installing the belt clip. Acrylic ester, which is contained in these glues, may crack the transceiver's back panel.

INSTALLING THE CAP OVER THE UNIVERSAL CONNECTOR

Insert the cap into place over the universal connector and secure it in place using the attached screw.

Universal connector cap
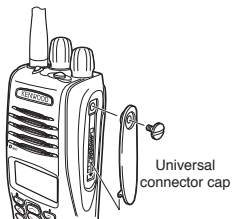
INSTALLING THE (OPTIONAL) SPEAKER/ MICROPHONE OR HEADSET

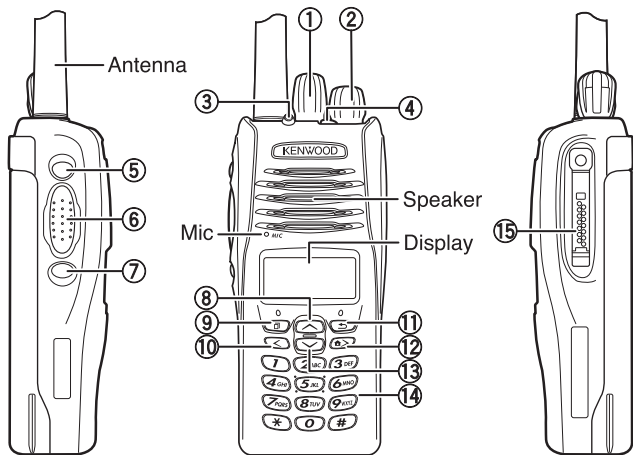**1** Insert the guide of the speaker/ microphone or headset connector into place over the universal connector.

2 Secure the connector in place using the attached screw.

Note: When not using an optional speaker/ microphone or headset, install the cap over the universal connector.

Optional speaker/ microphone

GETTING ACQUAINTED

Antenna

KENWOOD

Speaker

Mic

Display
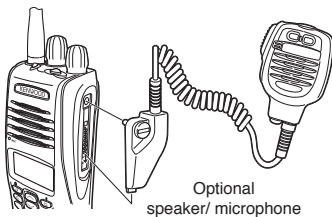
① **Selector knob**
Rotate to select a zone or channel/group ID (default).

② **Power switch/ Volume control**
Rotate to turn the transceiver ON/OFF and to adjust the volume.

③ **Transmit/ Receive/ Battery low indicator**
If enabled by your dealer, lights red while transmitting, green while receiving a call (Conventional channels only), and orange when receiving an optional signaling call (2-tone, DTMF signaling, etc.). Blinks red when the battery power is low while transmitting.

④ **Auxiliary key**
Press to activate its programmable function {page 7}.

⑤ **Side 1 key**
Press to activate its programmable function {page 7}. The
default is Squelch Off Momentary.

⑥ **PTT (Push-To-Talk) switch**
Press and hold this switch, then speak into the microphone
to call a station.

⑦ **Side 2 key**
Press to activate its programmable function {page 7}. The
default is Backlight.

⑧ ⌒ **key**
Press to activate its programmable function {page 7}. The
default is Zone Up.

⑨ ⊡ **key**
Press to activate its programmable function {page 7}. The
default is Menu.

⑩ ⌒ **key**
Press to activate its programmable function {page 7}.

⑪ ⊡ **key**
Press to activate its programmable function {page 7}.

⑫ ⊙ **key**
Press to activate its programmable function {page 7}.

⑬ ⌣ **key**
Press to activate its programmable function {page 7}. The
default is Zone Down.

⑭ **Keypad**
Press these keys to send DTMF tones. These keys can
also be programmed with secondary functions {page 7} if a
programmable function key is programmed as "Function".

⑮ **Universal connector**
Connect a speaker/ microphone or headset here {page 3}.
Otherwise, keep the supplied cap in place.

DISPLAY
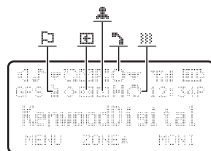
Indicator	Description
🖭	Monitor or Squelch Off is activated.
♪	Blinks when an incoming call matches your Optional Signaling.
▼	The current zone (left icon) or CH/GID (right icon) is added to scan.
◌	Scan is in progress. Blinks while scan is paused.
✉	A message is stored in memory. Blinks when a new message has arrived.
P	The current channel is a Priority channel.
O	Operator Selectable Tone (OST) is activated.
🖎	A Telephone ID call is being received. Blinks during Auto Telephone search.
Ⓨ	Signal strength indicator {page 27}.
▦	Battery power indicator {page 27}.
▬	Talk Around is activated.
⚑	Site Lock is activated.
◇	Scrambler/ Encryption is activated.
▦	Auto Recording on the VGS-1 option is activated.
⊞	Auto Reply Message is activated.
⊡	The auxiliary function is activated.
⚏	Lone Worker is activated.
H	The channel is using high transmit power. "L" appears when using low transmit power.
♡	VOX is activated.
⋙	The vibrator is activated. Blinks when inhibited.
12:34P	Displays the time.
MENU ZONE▲ MONI	Displays the key functions for 🔘, ◌, and 🔘.

PROGRAMMABLE FUNCTIONS

Following is a list of available programmable functions. Please contact your dealer for further details on those functions which have been programmed on your transceiver.

- 2-tone [1]
- Auto Reply Message [2]
- Auto Telephone [3]
- Autodial [4]
- Autodial Programming [4]
- AUX
- Backlight
- Broadcast [5]
- Call 1 ~ 6
- CH/GID Down
- Channel Entry
- CH/GID Recall
- CH/GID Up
- Clock
- Clock Adjustment
- CW Message [7]
- Direct CH/GID 1 ~ 5
- Direct CH/GID Select 1 ~ 5
- Display Format
- Emergency [8]
- Fixed Volume
- Forced Search [5]
- Function
- GPS Position Display
- Group (NXDN) [7]
- Group + SDM (NXDN) [9]
- Group + Status (NXDN) [9]
- Home CH/GID
- Home CH/GID Select
- Individual (NXDN) [9]
- Individual + SDM (NXDN) [9]
- Individual + Status (NXDN) [9]

- Key Lock
- Lone Worker
- Low Transmit Power
- Maintenance
- Menu
- Monitor [4]
- Monitor Momentary [4]
- OST [1]
- Playback [2]
- Priority-channel Select [11]
- Scan
- Scan Delete/Add
- Scrambler/Encryption
- Scramber/Encryption Code [9]
- SDM (FleetSync/NXDN)
- Selcall (FleetSync) [10]
- Selcall + SDM (FleetSync) [10]
- Selcall + Status (FleetSync) [10]
- Send the GPS data
- Site Down [5]
- Site Lock [5]
- Site Up [5]
- Site Up/Down [5, 6]
- Speaker Attenuation [12]
- Squelch Level [1]
- Squelch Off [1]
- Squelch Off Momentary [1]
- Stack
- Status (FleetSync/ NXDN)
- Talk Around [4]
- Telephone Disconnect [3]
- Transceiver Password

- Vibrator
- Voice Memo [2]
- VOX [11]

- Zone Delete/Add
- Zone Down
- Zone Up

[1] Available only for Analog Conventional operation.

[2] Available only if the VGS-1 optional board has been installed.

[3] Available only for Analog Trunking operation.

[4] Available only for Analog Conventional, Analog Trunking, and NXDN Conventional operation.

[5] Available only for NXDN Trunking operation.

[6] Can be programmed only on the Selector knob.

[7] Available only for NXDN Conventional operation.

[8] Can be programmed only on the Auxiliary key and the optional speaker/ microphone PF1 (orange) key.

[9] Available only for NXDN Conventional and NXDN Trunking operation.

[10] Available only for Analog Conventional and Analog Trunking operation.

[11] Available only for Analog Conventional and NXDN Conventional operation.

[12] Can be programmed only on the microphone programmable function keys.

SWITCHING POWER ON/OFF

Turn the **Power** switch/ **Volume** control clockwise to switch the transceiver ON.

Turn the **Power** switch/ **Volume** control counterclockwise fully to switch the transceiver OFF.

■ Transceiver Password

If the transceiver is password protected, "PASSWORD" will appear on the display when the power is turned ON. To unlock the transceiver, enter the password:

1 Select a character using the DTMF keypad.

- Press ⬤ or **#** to delete a character. Press and hold ⬤ or **#** to delete all characters.

2 Press ⬤ or ✳ to confirm the entry.

- If you enter an incorrect password, an error tone sounds and the transceiver remains locked.
- The password can contain a maximum of 6 digits.

ADJUSTING THE VOLUME

Rotate the **Power** switch/ **Volume** control to adjust the volume. Clockwise increases the volume and counterclockwise decreases it.

SELECTING A ZONE AND CHANNEL/GROUP ID

Select the desired zone using ⌃/⌄ (default). Each zone contains a group of channels.

Select the desired channel/group ID using the Selector knob (default). Each channel/group ID is programmed with settings for transmitting and receiving.

•   You can toggle the display between the zone and channel/group ID names and number by pressing the key programmed as Display Format, or by accessing the Menu {page 12}.

Note: If the default settings for ⌃/⌄ and the Selector knob have been changed, use the appropriate keys to select the zone and channel/group ID.

TRANSMITTING

1   Select the desired zone and channel/group ID.
2   Press the key programmed as **Monitor** or **Squelch Off** to check whether or not the channel is free.
    •   If the channel is busy, wait until it becomes free.
3   Press the **PTT** switch and speak into the microphone. Release the **PTT** switch to receive.
    •   For best sound quality, hold the transceiver approximately 1.5 inches (3 ~ 4 cm) from your mouth.

■ Making Group Calls (Digital)

If a key has been programmed with **Group** or **Group + Status**, you can select a group ID from the list to make a call to those parties. To select a group ID:

1   Press the key programmed as **Group** or **Group + Status**.
2   Press ⌃/⌄ to select a group ID/name from the list.
3   Press and hold the **PTT** switch to make the call.
    •   Speak into the transceiver as you would during a normal transmission.

■ **Making Individual Calls (Digital)**

If a key has been programmed with **Individual** or
Individual + Status, you can make calls to specific
persons.

1 Press the key programmed as **Individual** or
Individual + Status.

2 Press ⌒/⌄ to select a unit ID from the list.

  • You can enter the unit ID directly, using the DMF keypad.

3 Press and hold the **PTT** switch to make the call.

  • Speak into the transceiver as you would during a normal
    transmission.

RECEIVING

Select the desired zone and channel. If signaling has been
programmed on the selected channel, you will hear a call only
if the received signal matches your transceiver settings.

Note: Signaling allows your transceiver to code your calls. This will
prevent you from listening to unwanted calls. Refer to "SIGNALING"
on page 23 for details.

■ **Receiving Group Calls (Digital)**

When you receive a group call on a Conventional channel
and the received group ID matches the ID set up on your
transceiver, you can hear the caller's voice.

When you receive a group call on a Trunking channel, the
transceiver automatically switches to the communications
channel to receive the call.

■ **Receiving Individual Calls (Digital)**

When you receive an individual call, a ringing tone will
sound and the caller's ID will appear on the display. To
respond to the call, press and hold the **PTT** switch and
speak into the transceiver as you would during a normal
transmission.

MENU MODE

Many functions on this transceiver are selected or configured through the Menu instead of physical controls. Once you become familiar with the Menu system, you will appreciate the versatility it offers.

MENU ACCESS

1 Press the key programmed as **Menu**.

2 Press ⌃/⌄ to select a Menu item.
- You can enter the Menu number directly, using the DTMF keypad.

3 Press ☺ to set up the selected Menu item.

4 Press ⌃/⌄ to select your de sired setting.
- For settings with more than 1 level, repeat steps 3 and 4.

5 Press ☺ to set the selected setting and exit Menu mode.
- Press ☒ at any time to return to the previous display.
- Press ☎ at any time to exit Menu mode.

MENU CONFIGURATION

Some transceiver keys may already be programmed with functions listed in the Menu. Those functions can be accessed directly by pressing the key. All other functions can still be accessed using the transceiver Menu. The following table lists the available Menu items.

No.	Menu	Description
01	2-TONE	2-tone Mode
02	AUTO REPLY MSG	Auto Reply Message ON/OFF
03	AUTO TELEPHONE	Auto Telephone
04	AUTO DIAL	Autodial Mode
05	AUTO DIAL PROG	Autodial Programming Mode
06	AUX	AUX ON/OFF
07	BROADCAST	Broadcast ON/OFF

No.	Menu	Description
08	CLOCK	Clock ON/OFF
09	CLOCK ADJUST	Clock Adjustment mode
10	DIRECT CH1 SEL	Direct CH/GID 1 ~ 5 Select
11	DISP FORMAT	Display Format ON/OFF
12	FIXED VOLUME	Fixed Volume
13	FORCED SEARCH	Forced Search
14	GPS POS DISP	GPS Position Display mode
15	GROUP	Group mode
16	GROUP+STATUS	Group + Status mode
17	GROUP+SDM	Group + SDM mode
18	HOME CH SEL	Home CH/GID Select
19	INDIVIDUAL	Individual mode
20	INDIV+STATUS	Individual + Status mode
21	INDIV+SDM	Individual + SDM mode
22	LOW TX POWER	Low Transmission Power ON/OFF
23	MONITOR	Monitor ON/OFF
24	OST	OST ON/OFF
25	OST LIST	OST mode
26	PLAYBACK	Playback mode
27	PRI CH SEL	Priority Channel Select mode
28	SCAN	Scan ON/OFF
29	SCAN DEL/ADD	Scan Delete/Add
30	SCRAM/ENCRYP	Scrambler/Encryption ON/OFF
31	SCRAM CODE	Scrambler/Encryption Code mode
32	SELCALL	Selcall mode
33	SELCALL+STATUS	Selcall + Status mode
34	SELCALL+SDM	Selcall + SDM mode
35	SEND GPS DATA	Transmit your GPS data
36	SITE LOCK	Site Lock ON/OFF
37	SITE No.	Display Site Number
38	SQUELCH LEVEL	Squelch Level mode
39	SQUELCH OFF	Squelch Off ON/OFF
40	STACK	Stack mode
41	STATUS	Status mode

No.	Menu	Description
42	SHORT MESSAGE	Short Mesage mode
43	TALK AROUND	Talk Around ON/OFF
44	PASSWORD	Transceiver Password mode
45	VIBRATOR	Vibrator ON/OFF
46	VOICE MEMO	Voice Memo mode
47	VOX LEVEL	VOX Level mode
48	VOX	VOX ON/OFF
49	ZONE DEL/ADD	Zone Delete/A dd

CHARACTER ENTRY

There are 2 methods available for entering characters:

1) Pressing the ⌃/⌄ keys

   Press ⌃/⌄ to cycle the characters from A ~ Z, 0 ~ 9, and a space (default settings).

   You can also assign a character to an optional key and later press that key to recall the assigned character: A ~ Z, a ~ z, 0 ~ 9, or a space and characters.

2) Using the DTMF keypad

   Press the keypad keys to enter characters as shown in the table below:

DTMF Key	Character Cycle
1	1
2	A B C 2
3	D E F 3
4	G H I 4
5	J K L 5
6	M N O 6
7	P Q R S 7
8	T U V 8
9	W X Y Z 9
0	[space] 0

SCAN

Scan monitors for signals on the transceiver channels. While scanning, the transceiver checks for a signal on each channel and only stops if a signal is present.

To begin scanning, press the key programmed as **Scan**.

- The 🗘 icon appears on the display.
- When a signal is detected on a channel, Scan pauses at that channel. The transceiver will remain on the busy channel until the signal is no longer present, at which time Scan resumes.

To stop scanning, press the **Scan** key again.

Note: To use Scan, there must be at least 2 channels in the scan sequence.

TEMPORARY CHANNEL LOCKOUT

During scan, you can temporarily remove specific channels from the scanning sequence by selecting them and pressing the key programmed as **Scan Delete/Add**.

- The channel is no longer scanned. However, when scanning is ended and restarted, the channels are reset and deleted channels will again be in the scanning sequence.

PRIORITY SCAN

Note: To use Priority Scan, a Priority channel must be programmed.

When using a single Priority channel, the transceiver will automatically change to the Priority channel when a call is received on that channel, even if a call is being received on a normal channel.

When using dual Priority channels, Priority channel 1 is given precedence over Priority channel 2. So, if a call is received on Priority channel 1 while a call is already on Priority channel 2, the transceiver will change to Priority channel 1.

Scan Revert

The Scan Revert channel is the channel selected when you press the **PTT** switch to transmit during scan. Your dealer can program one of the following types of Scan Revert channels:

- **Selected:** The last channel selected before scan.
- **Selected + Talkback:** Same as "Selected", plus you can respond to calls on the channel at which scan is paused.
- **Priority 1/ Priority 2:** The Priority channel (either Priority 1 or Priority 2) .
- **Priority 1 + Talkback/ Priority2 + Talkback:** Same as "Priority 1/ Priority 2", plus you can respond to calls on the channel at which scan is paused.
- **Last Called + Selected:** The last channel on which you receive a call.

Scan Delete/Add

You can add and remove zones and/or channels/group IDs to and from your scan list.

1 Select your desired zone and/or channel/group ID.
2 Press the key programmed as **Zone Delete/Add** (to add/remove zones) or **Scan Delete/Add** (to add/remove channels/group IDs).
   - You can also press and hold the key programmed as **Scan Delete/Add** to add/remove zones.

Priority-Channel Select

If the Priority channel has been set as Operator Selectable by your dealer, you can reprogram the Priority channels.

1 Select your desired zone and channel/group ID.
2 Press the key programmed as **Priority-channel Select**.
3 Press ⊘/⊖ to select "NORMAL", "PRIORITY 1" ($\mathbb{P}^{\#}$), "PRIORITY 2" ($\mathbb{P}_{\blacksquare}$), or "PRIORITY 1&2" ($\mathbb{P}^{\#}_{\blacksquare}$).
4 Press ⊚ to save the setting and exit.

FleetSync: ALPHANUMERIC 2-WAY PAGING FUNCTION

FleetSync is an Alphanumeric 2-way Paging Function, and is a protocol owned by **Kenwood** Corporation.

Note: This function is available only in analog operation.

SELCALL (SELECTIVE CALLING)

A Selcall is a voice call to a station or group of stations.

■ Transmitting

1. Select your desired zone and channel.
2. Press the key programmed as **Selcall** or **Selcall + Status** to enter Selcall mode.
3. Press ⌢/⌣ to select the station you want to call.
   - If Manual Dialing is enabled, you can directly enter the station ID using the DTMF keypad.
4. Press the **PTT** switch and begin your conversation.

■ Receiving

An alert tone will sound and the transceiver will enter Selcall mode. The calling station's ID will appear when a Selcall is received. You can respond to the call by pressing the **PTT** switch and speaking into the microphone.

■ Identification Codes

An ID code is a combination of a 3-digit Fleet number and a 4-digit ID number. Each transceiver has its own ID.

- Enter a Fleet number (100 ~ 349) to make a group call.
- Enter an ID number (1000 ~ 4999) to make an individual call in your fleet.
- Enter a Fleet number to make a call to all units in the selected fleet (Fleet call).
- Enter an ID number to make a call to the selected ID in all fleets (Supervisor call).

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- Select "ALL" Fleet and "ALL" ID to make a call to all units (Broadcast call).

STATUS MESSAGE

You can send and receive 2-digit Status messages which may be decided in your talk group. Messages can contain up to 16 alphanumeric characters. Status messages range from 10 to 99 (80 ~ 99 are reserved for special messages).

A maximum of 15 received messages (combined status messages and short messages) can be stored in the stack memory of your transceiver.

■ **Transmitting**

1 Select your desired zone and channel.

2 Press the key programmed as **Status** to enter Status mode (proceed to step 5) or **Selcall + Status** to enter Selcall mode (proceed to step 3).

3 Press ◁/▷ to select the station you want to call.

- If Manual Dialing is enabled, you can enter a station ID by using the DTMF keypad, or by using ◁/▷. When using ◁/▷, cycle through the digits to select a digit, then press ⊡ to set the digit and move the cursor to the right. Repeat this process until the entire ID is entered.

4 Press ⊡ to enter Status mode.

5 Press ◁/▷ to select the status you want to transmit.

- If Manual Dialing is enabled, you can enter a status ID by using the DTMF keypad, or by using ◁/▷ (refer to step 3, above).

6 Press the **PTT** switch or **Side 2** key to initiate the call.

- "<COMPLETE>" appears on the display when the status has been successfully transmitted.

■ **Receiving**

The ✉ icon will flash and a calling ID or text message will appear when a Status call is received. Press any key to return to normal operation.

■ **Reviewing Messages in the Stack Memory**

1 Press the key programmed as **Stack**, or press and hold the key programmed as **Selcall**, **Status**, or **Selcall + Status** to enter Stack mode.

- The last received message is displayed.

2 Press ⌃/⌄ to select the desired message.

- Message types are identified as follows:
  I: Caller ID, S: Status Message, M: Short Message
- Press and hold ▭ for 1 second to cycle the display information as follows:
  ID Name > Status/Short Message > CH/GID > Time Stamp

3 Press ▭ to return to normal operation.

- To delete the selected message, press ▭ or **#**. To confirm the deletion, press ▭ or **✱**.
- To delete all messages, press and hold ▭ or **#** for 1 second. To confirm the deletion, press ▭ or **✱**.

SHORT/LONG MESSAGES

Received short messages are displayed the same as Status messages and are stored in the same stack memory.

To send and receive long messages, you must connect the transceiver to a PC. Ask your dealer for details.

GPS REPORT

To send your location data, you must first connect a GPS unit to the transceiver. GPS data can be manually transmitted by pressing the key programmed as **Send the GPS data**, or by accessing the Menu {page 12}. If set up by your dealer, GPS data may be automatically transmitted at a preset time interval.

DTMF (Dual Tone Multi Frequency) Calls

■ Making a DTMF Call

Manual Dialing

1 Press and hold the **PTT** switch.

2 Enter the desired digits using the DTMF keypad.

- If you release the **PTT** switch, transmit mode will end even if the complete number has not been sent.
- If the Keypad Auto PTT function has been enabled by your dealer, you do not need to press the **PTT** swich to transmit; you can make the call simply pressing the DTMF keys.

Store & Send

1 Press the key programmed as **Autodial**.

2 Enter up to 30 digits using the DTMF keypad.

- Alternatively, you can enter digits by using $\bigcirc/\bigcirc$.

3 Press the **PTT** switch to make the call.

■ Autodial

Autodial allows you to quickly call DTMF numbers that have been programmed onto your transceiver.

1 Press the key programmed as **Autodial**, or access the Menu {page 12}.

- The first entry in the Autodial list appears on the display.

2 Press $\bigcirc/\bigcirc$ to select your desired Autodial list number, or enter the list number directly (01 ~ 32).

- The stored entry appears on the display.

3 Press the **PTT** switch to make the call.

■ **Stun Code**

This function is used when a transceiver is stolen or lost. When the transceiver receives a call containing a stun code, the transceiver becomes disabled. The stun code is cancelled when the transceiver receives a call with a revive code.

TRUNKING CALLS (ANALOG)

■ **Making a Telephone Call**
   Manual Dialing

   1 Select your desired zone and telephone group ID.
   2 Press the **PTT** switch to start the call.
   3 Enter your desired number using the DTMF keys.

   Selecting a Number from the List

   1 Select your desired zone and telephone group ID.
   2 Press the key programmed as **Autodial**.
      • The last called unit appears on the display.
   3 Press ⬀/⬂ to select your desired list number.
   4 Press the **PTT** switch to make the call.

■ **Receiving a Telephone Call**

   When a call is received, press and hold the **PTT** switch to speak, and release it to receive.

   • Only one person can speak at a time.

EMERGENCY CALLS

If your transceiver has been programmed with the Emergency function, you can make emergency calls.

1 Press and hold the key programmed as **Emergency**.

- Ask your dealer for the length of time necessary to hold this key before the transceiver enters Emergency mode.

- When the transceiver enters Emergency mode, it will change to the Emergency channel and begin transmitting based on how it is set up by your dealer.

2 To exit Emergency mode, press the **Emergency** key again.

- If the Emergency mode completes a preset number of cycles, Emergency mode will automatically end and the transceiver will return to the zone and channel that was in use before Emergency mode was entered.

Note:
◆ Your dealer can set the transceiver to emit a tone when transmitting in Emergency mode.
◆ Your dealer can set the transceiver to emit tones and received signals as normal, or mute the speaker during Emergency operation.

SCRAMBLER

Press the key programmed as **Scrambler/ Encryption**, or access the Menu {page 12}, to switch the transceiver to secure (encrypted) transmission.

- Pressing the **PTT** switch after the Scrambler function has been turned ON encrypts the transmitted signal.

SIGNALING

■ Quiet Talk (QT)/ Digital Quiet Talk (DQT)

Your dealer may have programmed QT or DQT signaling on your transceiver channels. A QT tone/ DQT code is a sub-audible tone/code which allows you to ignore (not hear) calls from other parties who are using the same channel.

Operator Selectable Tone (OST)

If a key has been programmed with **OST**, you can reprogram the QT/DQT settings on each of your channels.

1 Select your desired channel.

2 Press and hold the key programmed as **OST** for 1 second.

3 Press ⬠/⬡ to select your desired tone or code.
   • Your dealer can set up to 40 tones/codes.

4 Press ⬡ to save your new setting.

5 When you have finished operating using OST, press the **OST** key again to turn the OST function OFF.

■ Radio Access Number (RAN)

RAN is a new signaling system designed for digital radio communications.

When a channel is set up with a RAN, squelch will only open when a call containing a matching RAN is received. If a call containing a different RAN is made on the same channel you are using, you will not hear the call. This allows you to ignore (not hear) calls from other parties who are using the same channel.

■ Optional Signaling

Your dealer may also program several types of optional signaling for your transceiver channels.

2-tone Signaling: 2-tone Signaling opens the squelch only when your transceiver receives a call containing matching 2 tones.

DTMF Signaling: DTMF Signaling opens the squelch only when the transceiver receives a call containing a matching DTMF code.

FleetSync Signaling: Refer to "Selcall (Selective Calling)" on page 17.

NXDN ID Signaling: NXDN ID is an optional signaling system available only for digital communications.

Voice Operated Transmission (VOX)

VOX can be activated or deactivated by your dealer. VOX operation allows you to transmit hands-free.

Note: To operate VOX, you must use an optional KHS-11, KHS-14, KHS-15-BH, or KHS-15-OH headset.

■ VOX Gain Level

1 Connect the headset to the transceiver.

2 Press the key programmed as **VOX**.

- The current VOX Gain level appears on the display.

3 Press ⌒/⌄ to increase or decrease the VOX Gain level.

- The VOX Gain can be adjusted from levels 1 to 10.

4 While adjusting the level, speak into the headset microphone to test the sensitivity level. (Your voice is not trasmitted during this test procedure.)

- When sound is recognized, the LED lights orange.

5 Press ⌾ to save the setting.

■ VOX Operation

1 Connect the headset to the transceiver.

2 Press and hold the key programmed as **VOX** for 2 seconds.

3 To transmit, simply speak into the microphone.

  • The transceiver recognizes sound levels depending on the VOX Gain level. If it is too sensitive, it will transmit when there is noise in the background. If it is not sensitive enough, it will not pick up your voice when you begin speaking.

4 When you finish speaking, transmission ends.

5 To turn the VOX function OFF, press and hold the **VOX** key again, for 2 seconds.

Note: If a speaker/ microphone is connected to the transceiver while VOX is ON, and the VOX Gain Level is set to a sensitive level, louder received signals may cause the transceiver to transmit.

BACKGROUND OPERATIONS

Your dealer can activate a variety of transceiver functions to perform without any additional operation on your part.

CLOCK

If activated by your dealer, you can view the clock by pressing the key programmed as **Clock**.

Note: Removing or leaving the battery pack uncharged for extended periods will clear the clock time.

To set the clock:

1 Press the key programmed as **Clock Adjustment**.
   • The current time setting appears.
2 Press ⌃/⌄ to increase or decrease the year setting.
3 Press ◎ to set the year and cycle to the month setting.
4 Repeat steps 2 and 3 to set the month, day, hour, and minute.
5 Press ◎ to exit Clock Adjustment mode.
   • You can press ⌀ at any time to exit Clock Adjustment mode.

VIBRATOR

When an optional vibrator is installed, the vibrator function will alert you when an optional signaling call is received. Press the key programmed as **Vibrator**, or access the Menu {page 12}, to turn the Vibrator function ON and OFF.

TIME-OUT TIMER (TOT)

The Time-out Timer is used to prevent you from using a channel for an extended duration. If you continuously transmit for a preset time, the transceiver will stop transmitting and an alert tone will sound. Release the **PTT** switch.

BATTERY SAVER

The Battery Saver can be activated only on Conventional channels. This function decreases the amount of power used when a signal is not being received and no operations are being performed.

KEY LOCK

Press the key programmed as **Key Lock** to lock and unlock the transceiver keys.

•   The following keys still function when Key Lock is activated: Emergency, Backlight, Monitor, Monitor Momentary, Squelch Off, Squelch Off Momentary, Function, Key Lock, PTT

LOW BATTERY WARNING

Low Battery Warning alerts you when the battery needs to be recharged. Your dealer can set an alert tone to sound and the LED indicator to blink red when the battery power is low. The battery power icon displays the battery power remaining, as illustrated below.

High	Sufficient	Low	Very low

When the battery power is very low, recharge or replace the battery pack.

SIGNAL STRENGTH INDICATOR

The signal strength indicator displays the strength of received calls.

Strong	Sufficient	Weak	Very weak

No icon appears when no signal is available.

flashes when out of range (NXDN Trunking only).

COMPANDER

If programmed by your dealer for a channel, the compander will remove excessive noise from transmitted signals, to provide higher clarity of signals.

BUSY CHANNEL LOCKOUT (BCL)

On Conventional channels, if BCL is set up by your dealer, you will be unable to transmit if the channel is already in use. Use a different channel or wait until the channel becomes free.

If BCL Override has been programmed, you can transmit over the current signal:

1 Press and hold the **PTT** switch.
   - If the channel is already in use, a warning tone will sound.
2 Quickly release and then press the **PTT** switch again.
3 Speak into the transceiver as you would during a normal call.

CONTROL CHANNEL HUNT

On digital Trunking channels, the transceiver automatically searches for a control channel.

- While searching for a control channel, the antenna icon will flash and no signals can be received.

PTT ID

PTT ID is the transceiver unique ID code which is sent each time the **PTT** switch is pressed and/or released.

Note: PTT ID can be made only in analog operation.

VOICE RECORDER

The voice recorder allows you to record conversations and create voice memos.

■ Auto Recording

If activated, the auto recorder will continuously record all transmitted and received signals. The recording storage area retains only the last 30 seconds of recording.

■ Voice Memos

To record a voice memo for later playback:

1 Press the key programmed as **Voice Memo**, press and hold the key programmed as **Playback**, or access the Menu {page 12}.

• The duration of recording memory will appear on the display and begin counting down.

2 Speak into the microphone to record your memo.

3 Press ⊙ to end the recording and store it in memory.

• If the memory becomes full, recording will stop and the voice memo will be stored in memory.

■ Auto Reply Message

You can set the transceiver to automatically respond to Individual Calls while using FleetSync/NXDN.

1 Press the key programmed as **Auto Reply Message** to enter Auto Reply Message mode.

2 When you receive an Individual Call, the transceiver will send an automatic response to the caller after 3 seconds, and "GREETING" appears on the display.

• If you are available to receive the call, press any key to cancel the auto response.

- If there is memory available on your transceiver, "I am not available. Leave your Message." will be sent to the caller and they can leave you a recorded message. When a message is stored on your transceiver, "Msg Rcvd" appears on the display.

- If no memory is available on your transceiver, "I am not available" will be sent to the caller and "MEMORY FULL" appears on the display.

■ **Playback**

To play back a recorded conversation, memo, or message:

1 Press the key programmed as **Playback** or access the Menu {page 12}.

- If the last action on your transceiver was to auto record your conversation, "STORE?" will appear on the display, otherwise a recording channel with the time of the recording will appear.

2 Press ⌃/⌄ to select the channel you want to play.

- "AR" represents auto recorded conversations, "RM" represents auto reply messages, and "VM" represents voice memos.

3 The transceiver will announce the time and channel, then the recording will play back.

- When the entire recording has been played, "END OF MESSAGE" is displayed. You can also end the recording at any time by pressing ⊡.

- To delete the selected recording, press ⊜. To clear all the recorded data, press and hold ⊜.

VOICE GUIDE

When changing the zone and/or channel, an audio voice will announce the new zone and channel. Additionally, when changing a function setting, the new setting will be announced.

Note: Voice announcements vary by dealer setting.

KENWOOD